

REMARKS

First, the Applicant (**Dembo** et al.) thanks the Examiner, Dr. Geoffrey Akers, for his time during the personal interview conducted Friday, October 15, 2004. An interview summary is provided below.

Claims 32-33, 36-42, and 44-45 are pending in this application. For the purpose of convenience and to better facilitate discussion, new claims 46-67 were presented to replace claims 32-33, 36-42, and 44-45 of record. No new matter has been added. The subject matter of new claims 46-67 are based on the previously pending claims and the specification as follows:

| <u>New claim</u> | <u>Basis</u> |
|------------------|---------------------------------------|
| 46, 49, 50 | previous claim 32 |
| 47, 56 | previous claim 33 |
| 48, 57 | previous claim 36 |
| 51, 60 | previous claim 40 |
| 52, 61 | previous claim 37 |
| 53, 62 | previous claim 38 |
| 54, 63 | p. 28 lines 9-16 |
| 55 | previous claim 39 |
| 58, 59 | previous claim 32 and p. 20 lines 4-6 |
| 64 | previous claim 41 |
| 65 | previous claim 42 |
| 66 | previous claim 44 |
| 67 | previous claim 45 |

Interview summary

In the interview, the **Young** (U.S. Patent No. 6,393,409), **Baker** (U.S. Patent No. 6,336,103), **Pang** (U.S. Patent No. 6,526,375), and **Rebane** (U.S. Patent No. 6,078,904) references were discussed in detail. The Applicant discussed prior art approaches that relied on measures or techniques that are based on the variance of historic portfolio returns. The Applicant noted that the portfolio performance measures provided by the Applicant's invention, in contrast to the prior art approaches, are scenario-based measures that distinguish between

upside and downside, and are able to distinguish between two portfolios having identical mean and variance. The Examiner agreed that the Applicant's invention would distinguish over the variance-based measures and techniques described in the cited art. It was suggested that the terms "put value" and "call value" be replaced with different descriptive terms having the same meaning as used in the specification, in order to avoid confusion with terminology used in non-relevant references (e.g. **Pang**) that relate to the pricing of actual options.

Rejections under 35 U.S.C. § 112

The independent claims have been reworded for greater clarity, which clearly claims the subject matter, which the applicant regards as the invention. In particular, the independent claims have been reworded to clarify that the portfolio is disaggregated such that the portfolio is characterized by an upside value ("call value") and a downside value ("put value"). Properties of mark-to-future values, upside and downside values, and efficient portfolios are recited in the independent claims. It is respectfully submitted that no further detail in the claims is required since 35 U.S.C. 112 clearly requires that it is the specification, which contains the written description of the invention, that must be enabling to persons skilled in the art, thus satisfying 35 U.S.C. 112.

Rejections under 35 U.S.C. § 103

The inventors have realized that in a framework where mark-to-future values for instruments are available, a portfolio can be disaggregated such that the portfolio can be characterized by a distribution of unrealized gains (over-performance of a benchmark) and a distribution of unrealized losses (under-performance of a benchmark). None of the cited references, including **Young**, **Baker**, **Rebane**, and **Pang**, explicitly disclose or suggest a technique where a portfolio is broken down in this way. Using variance hides this information, and mathematically,

variance is a poor measure of risk when historic returns are not Gaussian. As noted above, the performance measures provided by the Applicant's invention can be used to distinguish between two portfolios having identical mean and variance.

While optimization techniques, and techniques for constructing efficient frontiers are well known (see e.g. **Young, Baker**, and others), none of these incorporate the determination or use of the Applicant's upside value ("call value") and downside value ("put value") to evaluate a portfolio. This is because the cited art does not teach or suggest disaggregating a portfolio into a distribution of unrealized gains and a distribution of unrealized losses, based on mark-to-future values, for the purposes of determining an optimal portfolio (e.g. claims 46-54: maximize upside value given a downside limit, claims 55-63: minimize downside value given an upside limit), calculating performance measures (e.g. claims 64-67), or pricing portfolio insurance (e.g. claims 52-53, 61-62), for example.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be some reasonable expectation of success. Finally, the prior art references must teach or suggest all the claimed limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not in Applicants' disclosure. In this case, the cited references fail to teach or suggest all the claimed limitations.

In summary, the cited references do not disclose or suggest a technique where, given a portfolio, the portfolio can be disaggregated into two distributions, one of unrealized gains from which an upside value ("call value") can be calculated, and one of unrealized losses from which a downside value ("put value") can be

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calculated. The disaggregation of portfolios, such that each portfolio is characterized by said upside and downside values, is explicitly claimed in the independent claims (see e.g., step b. in each of claims 46, 55, and 64).

Conclusion

For the foregoing reasons, Applicants respectfully submit that each of claims 46-67 is now in form for allowance. A Notice of Allowance is respectfully and earnestly requested. However, if the Examiner deems that any issue remains after considering this response, he is invited to call the undersigned to expedite the prosecution and work out any such issue by telephone.

Respectfully submitted,

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